

REMARKS

In response to the Final Office Action mailed November 24, 2004, Applicants respectfully request reconsideration. To further the prosecution of this application, amendments have been made in the claims and each of the objections and rejections presented in the Office Action is responded to below. The claims as presented are believed to be in condition for allowance.

I. Claim Objections

Claims 7, 12, and 17 were objected to in the Office Action on the basis of informalities. Each of claims 7, 12, and 17 has been cancelled, rendering these rejections moot.

II. Claim Rejections Under 35 U.S.C. §102(b)

Claims 1-13 and 17 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 5,367,552 (Peschmann).

Applicants have cancelled claims 2-13 and 17 without prejudice or disclaimer. Accordingly, the rejection of these claims is now moot. However, Applicants do not concede that the basis for the rejection of any of claims 2-13 and 17 is proper, and reserve the right to add claims of this scope into this or related applications and to specifically address the patentability of these claims in the future, if deemed necessary.

In addition, Applicants have amended independent claim 1 to incorporate the subject matter of formerly pending claim 17, and have broadened the recitation of "a network" by replacing it with "a communication medium." No new matter has been added. The rejection of the subject matter of formerly pending claim 17 is respectfully traversed. Claim 1 is believed to be allowable over the prior art of record for the reasons set forth below.

In the Office Action, claim 17 was rejected as allegedly being anticipated by Peschmann. In particular, the Office Action cited column 6, lines 4-9, which references an Ethernet network connection that "may be used to transmit the images to a remote display station, or to an expert operator who can sequentially look at images from any number of inspection systems." This Ethernet network connection is shown in Figures 1-2 and 1A.

The Ethernet network cited in the Office Action is not a medium over which data is received by an external computer that implements an algorithm to make a threat determination. Rather, the information transmitted over the referenced Ethernet network is received by “a remote display station” or “an expert operator who can sequentially look at images from any number of inspection systems” (col. 6, lines 4-9). The remote display station disclosed in Peschmann is described as only performing the function of allowing an operator to look at images – it is not described as implementing an algorithm that performs a threat detection. Thus, the remote display station is not “an external computer that... implements an algorithm to make a threat determination,” as recited in claim 1.

For at least the foregoing reasons, claim 1 is believed to patentably distinguish over Peschmann.

III. Claim Rejections Under 35 U.S.C. §103(a)

Claims 14-15 were rejected under 35 U.S.C. §103(a) as allegedly being anticipated by Peschmann in view of U.S. Patent No. 6,018,562 (Willson). Claim 16 was rejected under 35 U.S.C. §103(a) as allegedly being anticipated by Peschmann in view of U.S. Patent No. 6,026,143 (Simanovsky).

Applicants have cancelled claims 14-16 without prejudice or disclaimer. Accordingly, the rejection of these claims is now moot. However, Applicants do not concede that the basis for the rejection of any of claims 14-16 is proper, and reserve the right to add claims of this scope into this or related applications and to specifically address the patentability of these claims in the future, if deemed necessary.

IV. New Claims

Claims 18-41, including independent claims 18, 19, and 31, have been added to further define Applicants' contribution to the art. No new matter has been added. The manner in which each of claims 18, 19, and 31 distinguishes over Peschmann is discussed below, as this reference was applied to each of the formerly pending independent claims. However, these claims are believed to be patentable in view of all of the prior art of record.

a. Overview Of Embodiments of The Invention

One embodiment of the invention is directed to a threat detection system of the type shown, for example, in Figures 1 and 2 of the application, which includes a CT scanner and a remote computer (or processor) that is coupled to the CT scanner via a communication medium (e.g., a network). As described in the specification (e.g., at page 13, line 30 – page, 14, line 9), the remote computer implements an algorithm that processes the data in a manner to facilitate automatically performing a threat determination about an object. While the claims are not limited to any particular type of data processing to facilitate automatically performing a threat determination, examples described in the specification include processing the scan data to determine a likelihood that an object is a target object based on the density, mass, effective atomic number, and/or thickness, (e.g., page 14, lines 5-13), and automatically performing the threat determination itself (e.g., page 14, lines 8-14).

This is in contrast to conventional threat detection systems that employ a CT scanner. Conventional systems are integrated such that any data processing to facilitate automatic threat determination (including the threat determination algorithm itself) is performed within the CT scanner – not in a computer remote therefrom. Thus, the processor that processes the CT scan data to perform a threat determination is the same processor that controls the operation of the CT scanner (e.g., by determining the locations for a CT scan).

It should be appreciated that the embodiment of the invention that employs a remote computer to process data from the CT scanner to facilitate automatically performing a threat determination is advantageous in that it provides for flexibility in the configuration of a threat determination system. This is not taught or suggested by Peschmann or any other prior art reference of record.

b. Peschmann Teaches a CT Scanner and a Remote Workstation For Displaying Images But No Remote Processor For Processing Data to Facilitate Automatic Threat Detection

Peschmann discloses a CT scanner 10 (referred to as a CT object detector) that is made up of a gantry system 24, a conveyor 20 to move objects through the gantry system 24, and an object detection system 26 that controls the operation of the gantry system 24, receives scan data therefrom and performs a threat detection. (see Fig. 1-1 and 1-2). The conveyor 20 moves

objects through the gantry system 24 under the control of a controller 22 that is in turn controlled by the object detection system 26 (col. 3, lines 38-44, col. 4, lines 29-32; FIG. 1A). Scan data from the gantry system 24 is passed to the object detection system 26 via a slip ring 58 and a stationary (i.e., not on the rotating gantry) control module 60 (col. 5, lines 36-38). In addition, control commands from the object detection system 26 are passed to the controller 22 via the control module 60 (col. 5, lines 32-35; FIG. 1A). While not described in the specification, the figures illustrate the connection between the control module 60 and the object detection system 26 as being accomplished via an "SBUS."

The object detection system 26 is an integral part of the CT scanner 10, as it not only analyzes the scan data to perform threat detection (col. 3, lines 48-60), but also controls the operation of the gantry system 24. In this respect, while the gantry system 24 includes the X-ray source and detectors for the CT scanner 10, the gantry system 24 does not form a complete and operational CT scanner without the object detection system 26. For example, workstation 64 (within object detection system 26) performs the function of determining CT scan locations for the gantry system 24 (column 7, lines 49-52 and FIG. 1A), and also identifies objects of interest in the scan (column 3, lines 59-60; column 7, lines 49-57).

As should be appreciated from the foregoing, workstation 64 is not a computer remote from the CT scanner, but is a critical and integral part thereof. The only remote computer disclosed in Peschmann is the object reconstruction system 28, which does not process data to facilitate automatic threat detection, but only reconstructs data to present it in a form viewable by a human operator. (col. 3, lines 59-68).

The newly added claims recite the remote computer as implementing an algorithm that process the data from the CT scanner to facilitate automatically performing a threat determination, or as implementing an algorithm that performs a threat determination to capture this distinction from Peschmann.

c. Claim 18

Claim 18 recites a threat detection system comprising a communication medium, at least one computed tomography (CT) scanner coupled to the communication medium, and a computer coupled to the communication medium. The at least one CT scanner performs at least one CT scan of an object and generates data representative of the object based at least partially upon the

at least one CT scan. The CT scanner comprises at least one processor that determines one or more locations for the at least one CT scan. The computer is remote from the CT scanner and receives the data from the CT scanner via the communication medium. The computer implements an algorithm that performs a threat determination about the object based at least partially on the data.

As should be appreciated from the foregoing, the only computer disclosed in Peschmann as being remote from the CT scanner 10 is the object reconstruction system 28, which does not implement an algorithm that performs a threat determination, but only reconstructs data to present it in a form viewable by a human operator. (col. 3, lines 59-68).

The workstation 64 (and associated VME computer) is the only computer in Peschmann that implements an algorithm that performs a threat determination, but it is part of the CT scanner and not remote from it. In this respect, the CT scanner recited in claim 18 cannot be read on the gantry system 24 or any other group of components of the CT scanner 10 that excludes the workstation 64, because claim 18 requires that the claimed CT scanner comprise at least one processor that determines one or more locations for the at least one CT scan, and the only such processor in Peschmann is the workstation 64.

In view of the foregoing, claim 18 patentably distinguishes over Peschmann, as well as the other prior art of record.

d. Claim 19

Claim 19 recites a threat detection system comprising a communication medium, at least one computed tomography (CT) scanner coupled to the communication medium, and a computer coupled to the communication medium. The at least one CT scanner performs at least one CT scan of an object and generates data representative of the object based at least partially upon the at least one CT scan. The CT scanner comprises at least one processor that determines one or more locations for the at least one CT scan. The computer is remote from the CT scanner and receives the data from the CT scanner via the communication medium. The computer implements an algorithm that processes the data in a manner to facilitate automatically performing a threat determination about the object.

As discussed in connection with claim 18, the only computer disclosed in Peschmann as being remote from the CT scanner 10 is the object reconstruction system 28, which does not

implement an algorithm that processes the data in a manner to facilitate automatically performing a threat determination, but only reconstructs data to present it in a form viewable by a human operator. (col. 3, lines 59-68).

The workstation 64 (and associated VME computer) is the only computer in Peschmann that implements an algorithm that processes the data in a manner to facilitate automatically performing a threat determination, but it is part of the CT scanner and not remote from it. As with claim 18, the CT scanner recited in claim 19 cannot be read on the gantry system 24 or any other group of components of the CT scanner 10 that excludes the workstation 64, because claim 19 requires that the claimed CT scanner comprise at least one processor that determines one or more locations for the at least one CT scan, and the only such processor in Peschmann is the workstation 64.

In view of the foregoing, claim 19 patentably distinguishes over Peschmann, as well as the other prior art of record. Claims 20-30 depend from claim 19 and are patentable for at least the same reasons.

e. Claim 31

Claim 31 recites a method of making a threat determination about an object. The method comprises acts of (A) performing a computed tomography (CT) scan of the object using a CT scanner that generates data representative of the object, the CT scan comprising a scan at a plurality of locations, the CT scanner comprising at least one processor that determines the locations for the CT scan, (B) transmitting the data from the CT scanner over the communication medium to a remote computer, and (C) processing the data, via the remote computer, in a manner to facilitate automatically performing a threat determination about the object.

As discussed in connection with claim 19, the only computer disclosed in Peschmann as being remote from the CT scanner 10 is the object reconstruction system 28, which does not implement an algorithm that processes the data in a manner to facilitate automatically performing a threat determination, but only reconstructs data to present it in a form viewable by a human operator. (col. 3, lines 59-68).

The workstation 64 (and associated VME computer) is the only computer in Peschmann that implements an algorithm that processes the data in a manner to facilitate automatically performing a threat determination, but it is part of the CT scanner and not remote from it. As

with claim 19, the CT scanner recited in claim 31 cannot be read on the gantry system 24 or any other group of components of the CT scanner 10 that excludes the workstation 64, because claim 31 requires that the claimed CT scanner comprise at least one processor that determines one or more locations for the at least one CT scan, and the only such processor in Peschmann is the workstation 64.

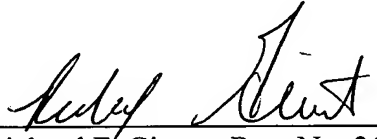
In view of the foregoing, claim 31 patentably distinguishes over Peschmann, as well as the other prior art of record. Claims 32-41 depend from claim 31 and are patentable for at least the same reasons.

CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,
Richard R. Bijjani et al., Applicants

By: 
Richard F. Giunta, Reg. No. 36,149
Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, Massachusetts 02210-2206
Telephone: (617) 646-8000

Docket No.: L0632.70001US03
Date: March 10, 2005
x02/24/05x